One hundred and sixteen presents were announced as having been received since the last meeting, including, amongst others:—

Transactions of the Yale University Observatory, vol. i. parts 3 and 4, presented by the Observatory; Harvard College Observatory Annals, vol. xv. part 2, catalogue of 8,627 stars, presented by the Observatory; R. A. Proctor and A. Cowper Ranyard, Old and New Astronomy, presented by Mr. Ranyard; J. de Mendizábal Tamborrel, Tables de Logarithmes, presented by the author; Amy Johnson, Sunshine, presented by the author; Karlsruhe Observatory, Veröffentlichungen, Heft IV., presented by the Observatory; Photographs of the Milky Way, minor planets, meteor tracks, &c., presented by Dr. Max Wolf, per Mr. A. Taylor; Positive enlargements of photographs of *Jupiter* made at the Lick Observatory, presented by the Observatory; Further portion of a series of photographs of the Presidents of the Society, presented by Mr. W. Schooling; Enlargements from a series of negatives of the region surrounding η *Argûs*, and other astronomical photographs made at the Cape Observatory, presented by Dr. Gill.

Photographs of past Presidents of the Society.

It has already been announced that Mr. Schooling is presenting to the Society a series of beautiful photographs of the past presidents, and two instalments have been warmly acknowledged at evening meetings. To complete the series Mr. Schooling would be glad of the loan of portraits of the following:—

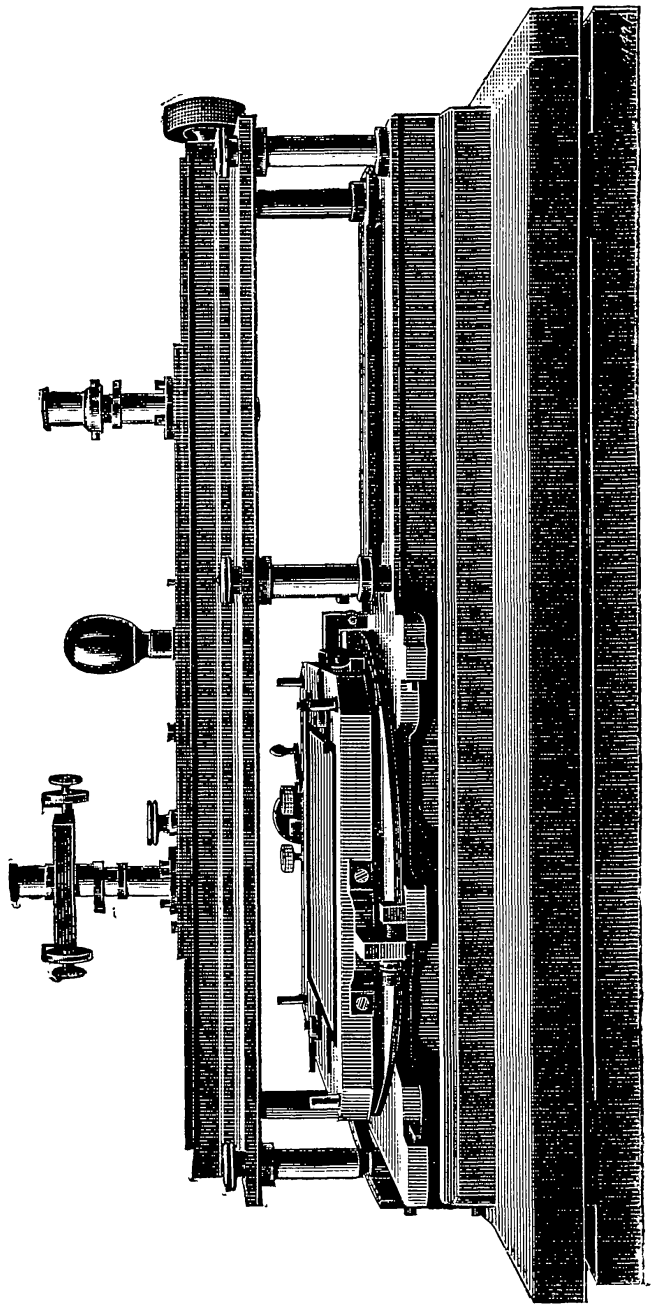
H. T. Colebrooke (1823–24),
Bishop Brinkley (1831–32),
Manuel J. Johnson (1855–56),
Warren De la Rue (1864–65),

and any information which might help him to this end will be gratefully received either by him or by the secretaries.

A Micrometer for measuring the Plates of the Astrophotographic Chart. By W. H. M. Christie, M.A., F.R.S., Astronomer Royal.

For the measurement of the catalogue plates of the Astrophotographic Chart, the micrometric slide originally made by Messrs. Troughton & Simms for the measurement of the distance of *Venus* from the Sun's centre on the transit of *Venus* photographs, 1874, by the help of an auxiliary millimetre scale on plate-glass, has been adapted to the ready determination of rectangular coordinates and diameters of disks of stars on $16^{cm} \times 16^{cm}$ plates.

The two figures will give an idea of the general arrangement. Two microscopes, rigidly connected, are mounted in a longitudinal hollow frame or slide, which can be moved quickly by hand to any position in a long slide, and clamped securely.

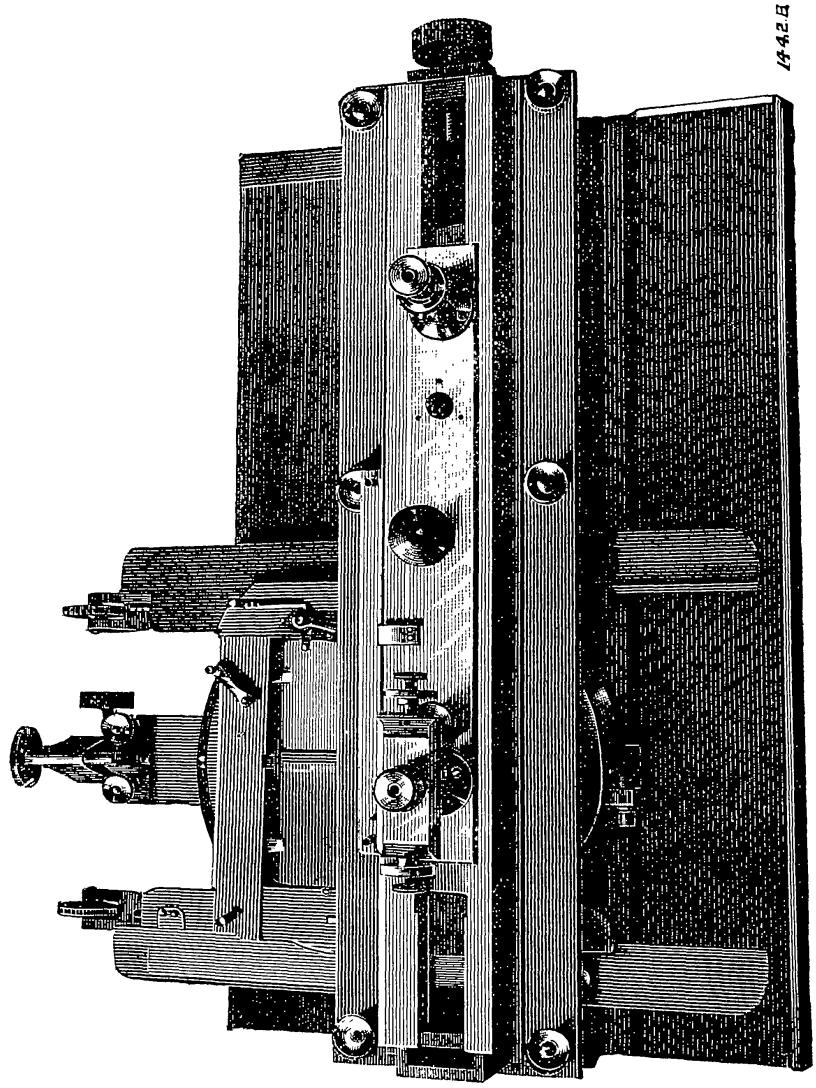


Micrometer for Stellar Photographs, Royal Observatory, Greenwich.

Fig. 1.—View nearly in plane of photograph.

A slow motion can be given to this latter and to the frame carrying the two microscopes by means of a screw, shown on the right. The photographic plate (in a suitable frame) is viewed by the left-hand microscope (which is provided with a parallel-

wire micrometer, to be described presently), and a glass scale, divided into millimetres, is viewed by the other. The plate is held in its frame, with film uppermost, in precisely the same manner as in the plateholder at the breech end of the photo-telescope, being pressed laterally by springs against two studs on one side (for orientation), and against one stud in the middle of the adjacent side (for fixity of position), the film side being kept



MICROMETER FOR STELLAR PHOTOGRAPHS, ROYAL OBSERVATORY, GREENWICH.

FIG. 2.—View from above.

in bearing with three studs in the focal plane of the microscope (at two corners and the middle of the side opposite) by three springs immediately below. The frame in which the plate is held is capable of rotation through 90°, banking against adjustable screws so that the cross lines of the réseau can be successively placed parallel to the micrometer slide and coordinates measured in the two directions at right angles. It is, further, mounted in a slide perpendicular to the micrometer slide (with adjustment

for accurate perpendicularity), so that by the longitudinal motion of the microscope and the transverse motion of the photograph, any point of the latter can be brought under the microscope, the approximate coordinates being read off by millimetre scales attached to the two slides. The whole instrument is mounted on a hinged wooden frame, so that the plane of the photograph can be tilted to any convenient angle for vision by transmitted light from a reflector or white paper below, the plate and frame being counterpoised by two weights running over pulleys at the top of the transverse slide.

The star to be measured having been brought near the centre of the field of the left-hand microscope by the quick motion, the microscope frame is clamped, and, by means of the slow motion, the corresponding division of the millimetre scale is bisected by the fixed parallel wires of the right-hand microscope. The star is then measured with the left-hand micrometer-microscope. This is arranged to give readily the reading for the centre of the star's disk and its diameter, the principle being that devised by Sir G. B. Airy for the Reflex Zenith Tube at Greenwich. There are two micrometers, A carrying its own wire and also the bearing of B, which carries a parallel wire. The screws for A and B have the same pitch, representing $20''$ or $\frac{1}{3}^{mm}$ on the plate, and the heads are divided (in opposite directions) into 100 parts, so that in the sum of two readings 1 div.$=0''.1$. (It is intended that two readings should be taken as a rule.) It will be seen that if a and b are the readings of the two micrometers when their wires (crossed relatively to their respective heads) are placed on the two edges of the star's disk, its diameter would be b (the zero of micrometer B being adjusted for coincidence of its wire with that of A), and the reading for its centre would be $a+\frac{1}{2}b$. One coordinate having thus been measured, the plate is rotated through 90°, and the other is similarly obtained, while the photographic magnitude is inferred from the measures of diameters (by microscope B).

By this arrangement it will be seen that the positions of stars can be expeditiously found without the necessity for measurement of the lines of the réseau, and thus great labour may be saved.

Royal Observatory, Greenwich:
1893 *March* 8.